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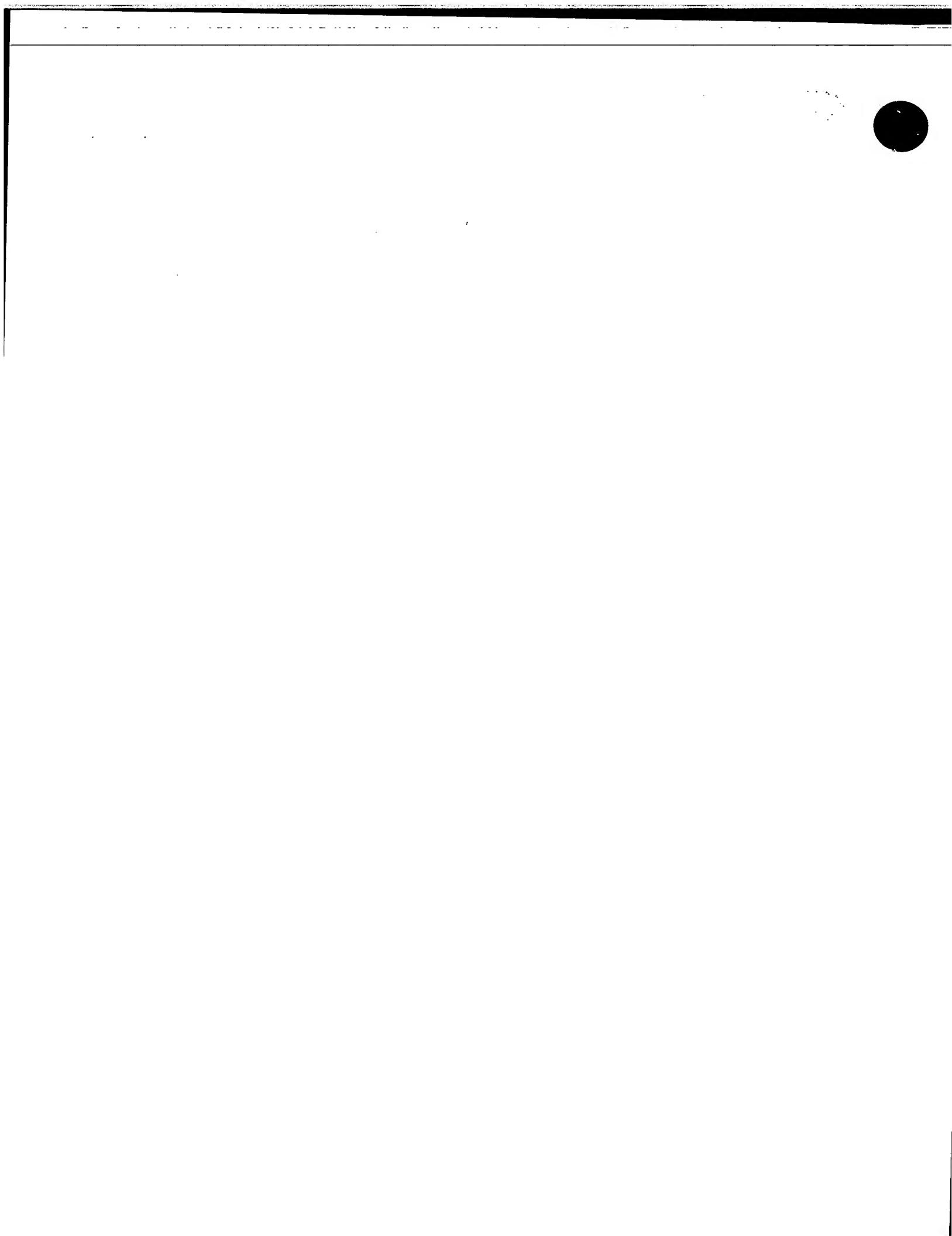
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Signed

Dated

*Stephen Hardley*  
7 February 2005

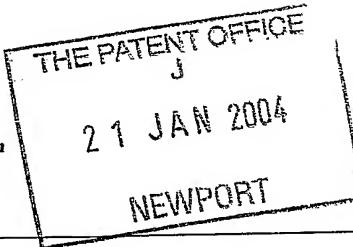




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21 JAN 04 E566740-1 D00750  
P01/7700 0.00-0401232.4 CHEQUE**Request for grant of a patent**

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)



The Patent Office

 Cardiff Road  
 Newport  
 South Wales  
 NP10 8QQ

1. Your reference

MG/LAT/LW/P/25630.GB

2. Patent application number

0401232.4

(The Patent Office will fill in this part)

3. Full name, address and postcode of the or of each applicant (underline all surnames)

 Mix UK Limited,  
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Patents ADP number (if you know it)

8791808001

If the applicant is a corporate body, give the country/state of its incorporation

United Kingdom

4. Title of the invention

Filling Material

5. Name of your agent (if you have one)

 WILSON GUNN M'CAW  
 5th FLOOR, BLACKFRIARS HOUSE,  
 THE PARSONAGE,  
 MANCHESTER  
 M3 2JA

Patents ADP number (if you know it)

7153927001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number  
(if you know it)Date of filing  
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing  
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

YES

- a) any applicant named in part 3 is not an inventor, or
- b) there is an inventor who is not named as an applicant, or
- c) any named applicant is a corporate body.

See note (d))

**Patents Form 1/77**

9. Enter the number of sheets for any of the following items you are filing with this form.  
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Continuation sheets of this form

Description

5

Claim(s)

Abstract

Drawing(s)

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (*Patents Form 7/77*)

Request for preliminary examination and search (*Patents Form 9/77*)

Request for substantive examination  
(*Patents Form 10/77*)

Any other documents  
(please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature

Date 20/01/2004

Wilson Gunn McCaw.

12. Name and daytime telephone number of person to contact in the United Kingdom

Dr. Lucy Tovell

0161 827 9400

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## Filling Material

The present invention relates to a filling material which is particularly suitable for filling joints in paving.

5       Traditionally, joints between paving flags, cobbles and stone setts have been filled with sand and cement mortar. The mortar is difficult and time-consuming to apply and often stains the flags during its application. Furthermore, once the mortar sets it eventually cracks and spills which looks unsightly and allows weeds etc to grow between the paving flags. Although, the mortar can be replaced, it is 10 particularly difficult to remove the mortar without damaging the paving flags as it adheres to the flags as it sets.

A similar approach is to apply kiln dried sand mixed with dry cement. The mixture is brushed into the joints in a dry state and then sprinkled with water in order to set the mixture as cement. This approach is beset with problems as the distribution 15 of cement in the mixture is uneven and where sand-only or mixture comprising predominantly sand is brushed into joints it is quickly washed or blown out of the joints by rain and wind. Generally, there is not enough cement in a mixture of this kind to ensure durable joints and as a consequence the mortar in joints filled in this way tends to crack even under light traffic.

20       It is also known to use asphalt to fill joints. However, asphalt is generally only used for cobbles. The application of asphalt is very slow and can cause permanent staining to the cobbles. Furthermore, the subsequent removal of cobbles for repairs etc is very difficult, time consuming and costly.

In an attempt to address these problems, a wide jointing compound called Geofix (RTM) has been developed. Geofix (RTM) is a ready to use product which sets hard on immediate exposure to oxygen. The product is vacuum packed to avoid exposure to oxygen. Therefore, the packs need to be carefully handled in storage and

5 transport, as any slight damage to the pack will result in the contents setting hard, rendering the product useless. Furthermore, the need to vacuum pack the product introduces further costs and complexities into the manufacture of the product.

Thus, it is an object of the present invention to provide a ready to use filling material for paving flags and the like whereby the setting/curing of the material is

10 retarded such that it is not necessary to prepare and pack the material in an oxygen free environment.

According to a first aspect of the present invention there is provided a filling material for use with paving flags and the like, comprising at least one base material, at least one binder, at least one cross-linking agent, a solvent and at least one cure

15 retarder.

Advantageously, the curing of the material of the present invention is retarded such that the material does not begin to cure on immediate exposure to oxygen. Therefore, the material does not have to be produced and packed in an inert atmosphere. Clearly, this reduces the costs involved in manufacture and eases the

20 manufacturing and transport processes.

When compared to traditional methods as hereinbefore described, the material of the present invention offers a number of benefits. For example, the product is a one-part material which can be tipped out of its container and easily brushed into the joints without the need for specialist knowledge, skills or equipment. Clearly, this

saves time, labour and cost. Furthermore, there is very little, if any, waste with the material of the present invention as all material can be brushed into the joints between the paving flags. A further advantage of the present invention is that it does not permanently stain the surface flags.

5 A still further advantage of the present invention is that the material, once cured does not adhere to the sides of the flags so that the flags are removed in order that the cables etc thereunder can be repaired, the flags can be re-used.

A significant advantage of the present invention is that it is environmentally friendly in that the material once cured, it is permeable to water and oxygen, such that 10 the underlying soil and plant roots can 'breathe'.

The base material of the present invention is preferably granular and may be of natural or synthetic origin. The granular base material preferably has a particle size in the range from 0.1 to 6mm.

Suitable bases for use with the present invention, which may be used alone or 15 in combination, include any of the following: silica, sand, crushed glass, granite, basalt and any other aggregate containing silica.

The base material preferably constitutes from 95 to 99% w/w of the material of the present invention.

The binder of the present invention may be a blend of drying oils of vegetable 20 or synthetic origin.

Suitable binders for use with the present invention, which may be used alone or in combination, include any of the following: polybutadiene, alkyd resin and linseed oil or other vegetable oils.

The binder preferably constitutes from 1 to 5% w/w of the material of the present invention.

Suitable solvents for use with the present invention include any aliphatic and/or aromatic hydrocarbon solvents. Preferably, the solvent is white spirit.

5 The solvent of the present invention preferably constitutes from 0.1 to 2% w/w of the material of the present invention.

Suitable cross-linking agents include any of the following, either alone or in combination, metallic driers such as cobalt octoate, cobalt zirconium complexes and manganese salts.

10 Suitable retarders, which may also be referred to as anti-skinning agents, for use with the present invention, include terpine and pine oils and mixtures thereof.

Preferably the retarder is methyl ethyl ketoxime which may be used alone or in combination with the aforesaid retarders.

15 The retarder preferably constitutes from 0.00005 to 0.005% w/w of the material of the present invention.

The material of the present invention may further comprise any of the following additional ingredients either alone or in combination; pigments, biocides and plasticisers.

20 The material of the present invention may be packed in airtight containers to aid transport. Furthermore, the package may comprise an oxygen absorbing material such as that available from Mitsubishi Gas Chemical Company under the registered trademark Ageless. Such a material serves to enhance the shelf-life of the material.

According to the second aspect of the present invention there is provided a method for preparing a filling material for use with paving flags and the like

comprising the steps of; blending together the retarder and solvent with the binder and adding to this at least one base material.

The filling material is then packed into appropriate packaging and the packaging is sealed.

5 In order that the invention is better understood it will now be described further by way of example only and with reference to the following example:

Component	Function	Amount (w/w)
Vegetable oil	Binder	2
Hydrocarbon solvent	Solvent	0.25
Pine Oil	Retarder	0.0005
Silica	Base material	97.7495

10 It of course to be understood that the present invention is not intended to be limited to the embodiment as hereinbefore described which is described by way of example only.



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